Does cognateness impact bilingual lexical acquisition?

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Background

How does the similarity between two Translation Equivalents (i.e., **cognateness**) affect **lexical acquisition**?

Toddlers learning two languages sharing many cognates show **larger vocabulary sizes** in their **non-dominant language** (language of less exposure; at 24 mo)[1]

↑ **Cognates** ↑ Non-dominant Vocabulary size

Hypotheses: **cognate pairs of Translation Equivalents (TEs)** are acquired (1) **earlier** and (2) **closer in time** than non-cognate TEs, in the **non-dominant language**.

Methods

334 bilinguals aged **12 to 34 mo**
- 219 Catalan-dominant, 115 Spanish-dominant
- 10-50% exposure to non-dominant language.

We collected comprehensive and productive data:
- **Lab-based checklist**: 100 items in Catalan + 100 items in Spanish
- **Online checklist:** 718 in Spanish + 718 items in Catalan (participants completed a random selection of ~245 items).

16 semantic/functional categories

REFERENCES: [1] Floccia et al. (2018), [2] Mahr (2020), [3] Bürkner (2017), [4] Frank et al. (2017), [5] Cuetos et al. (2011), [6] Boada et al. (2019)

(1) Are cognates acquired earlier?

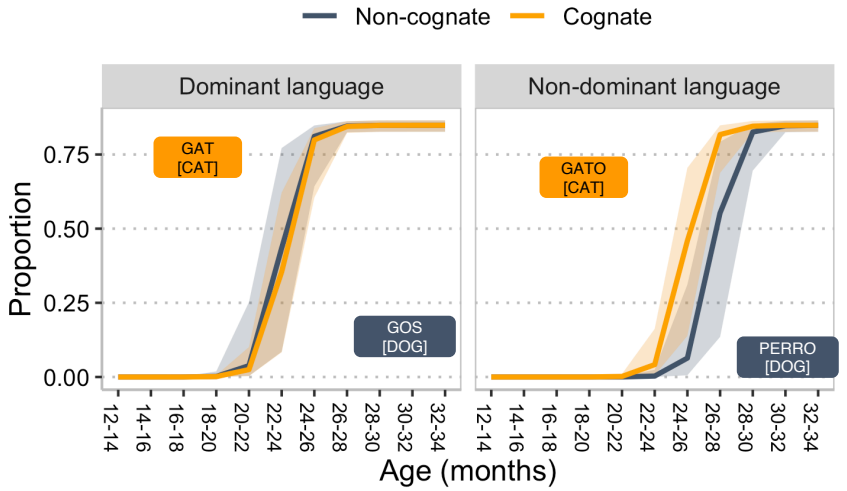
We used **logistic curves** to model the **proportion** of toddlers that were reported to understand each word.[2]

We defined **age of acquisition** (AoA) of each word as the age at which its acquisition curve was steepest (***Mid-point***). We estimated **mid-points** using a **Bayesian**[3] model with the following predictors:

Dominance (Non-dominant/Dominant): The word belongs to the language of highest exposure

Cognateness (Non-cognate/Cognate): Phonological similarity between the forms of the TE

Posterior predictive checks: What does our model predict?



Lines represent the median of the marginal posterior distribution of fitted values. Shaded areas represent 95% credible intervals.

This model fitted the data **moderately better** than a model not including *Cognateness* ($ELPD_{diff}$ = -14.4, SE_{diff} = 3.2)

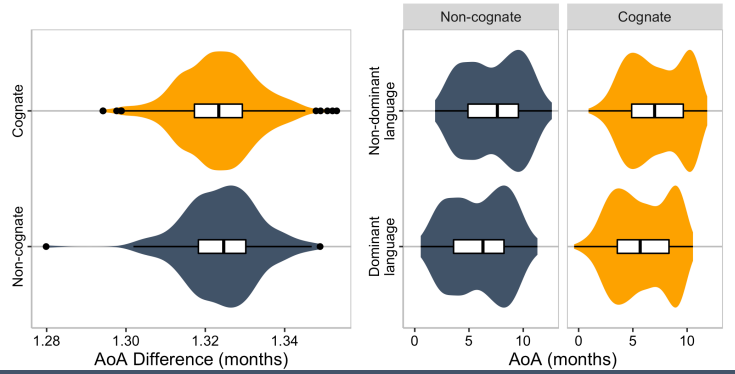
(2) Are cognate TEs acquired closer in time?

We calculated the **difference in months** between the **mid-points** of each Translation Equivalent (TE):

AoA_{diff} = Mid-point$_{Dominant}$ – Mid-point$_{Non\text{-}dominant}$

Bayesian ANOVA: Moderate support for H0; absence of cognateness effect (*BF* = 0.13)

Difference in Age of Acquisition (AoA) across Translation Equivalents (TEs)



Conclusions

We present preliminary data on **comprehensive vocabulary**. Data collection is **ongoing**: some age groups need more participants. We found:

(1) **Moderate** but **inconclusive** evidence that cognates are aquired ealier than non-cognates in the **non-dominant language**.

(2) **Moderate** evidence **against** cognate TEs being acquired closer in time than non-cognates.

Future analysis using **continuous** scores of **bilingualism** (i.e. amount of exposure) and **cognateness** (measures of phonological similarity between TEs).